Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

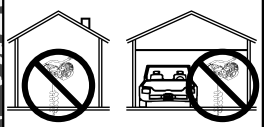
PREDATOR™
OUTDOOR POWER EQUIPMENT

Gasoline
AUGER POWERHEAD

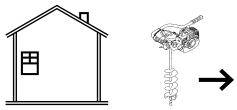
⚠ DANGER

Using an engine indoors CAN KILL YOU IN MINUTES.

Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage, EVEN IF doors and windows are open.



Only use OUTSIDE and far away from windows, doors, and vents.

Visit our website at: http://www.harborfreight.com
Email our technical support at: productsupport@harborfreight.com
Email our engine support at: predator@harborfreight.com

REV 14I

ITEM 60622

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools.
Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

⚠ WARNING

Read this material before using this product. Failure to do so can result in serious injury. SAVE THIS MANUAL.

Table of Contents

Specifications 2
Safety 3
Setup 6
Operation 8
Maintenance 12
Troubleshooting 14
Parts Lists and Diagrams 16
Warranties 22

SAFETY

SETUP

OPERATION

MAINTENANCE

Specifications

Maximum Drilling Depth		22″
Auger Diameter		4″
Overall Bit Length		30-1/2″ Long
Drive Shaft		7/8″ Diameter x 1-1/2″ Long
Accessories		Auger Bit, Spark Plug Wrench, Screwdriver, 2 Hex Keys
Engine Type		52cc / Single Cylinder 2 stroke / Recoil Start
Bore x Stroke		44 x 34
Compression Ratio		8.2:1
Displacement		52cc
Rotation viewed from PTO (power takeoff - the output shaft)		Clockwise
Fuel	Type	25:1 - 90+ octane unleaded stabilizer-treated gasoline with 2 cycle oil mix
	Capacity	0.26 Gallons
Recommended Gear Oil		SAE 80-90 Weight Gear Oil
Spark Plug	Compatible Types	NGK BPM7A Bosch WS7F Champion CJ7Y Torch L7T (resistive plugs only)
	Gap	0.028~0.031″
Drilling Speed		150 RPM

PREDATOR™
OUTDOOR POWER EQUIPMENT

WARNING SYMBOLS AND DEFINITIONS	
⚠	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠ DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

Symbol Definitions

Symbol	Property or Statement
RPM	Revolutions Per Minute
HP	Horsepower
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.
	Read the manual before set-up and/or use.
	WARNING marking concerning Risk of Hearing Loss. Wear hearing protection.

Symbol	Property or Statement
	WARNING marking concerning Risk of Respiratory Injury. Operate Engine OUTSIDE and far away from windows, doors, and vents.
	WARNING marking concerning Risk of Fire while handling fuel. Do not smoke while handling fuel.
	WARNING marking concerning Risk of Fire. Do not refuel while operating. Keep flammable objects away from Engine.

Safety Warnings

WARNING! Read all instructions.
Failure to follow all instructions listed below may result in fire, serious injury and/or DEATH.
The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

Set up Precautions

1. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
4. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.
5. Use only oil and fuel recommended in the Specifications chart of this manual.

Operating Precautions

1. **Buried utility lines may be unmarked; contact utility companies before drilling.** Contacting utility lines may cause severe personal injury or death.
2. **Check for landscape fabric before drilling.** Landscape fabric may get pulled into the Bit and also pull the operator into the Bit. Before drilling, cut a hole in the landscape fabric sufficiently larger than the diameter of the Auger to prevent contact or entanglement with the fabric.
3. **Keep everyone other than the operator <u>at least 10 feet</u> from the Auger during operation. People using hand tools should not move or remove soil-pile while the Auger is operating.** Always keep children away from the Auger, especially while it is operating.
4. To prevent severe personal injury or dismemberment from rotating Bit: Stand on flat, level, solid surface and brace against torque during use. Keep hands and feet away from Bit and hole when Engine is running.
5. **CARBON MONOXIDE HAZARD Using an engine indoors CAN KILL YOU IN MINUTES.** Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell. NEVER use inside a home or garage, EVEN IF doors and windows are open. Only use OUTSIDE and far away from windows, doors, and vents.
6. Do not lock trigger on. Never disable safety switches or components.
7. **Maintain a firm grip on the Auger with both hands and be aware of the strong start-up torque of the tool.**
8. Disconnect and insulate spark plug wire before maintenance and/or changing bits.
9. Do not carry between holes with Engine running.
10. Carry by handle only; not by Bit.
11. **Keep your thumb near the Power Switch in the event the Auger must be turned off immediately.**
12. **Do not use the Auger if the Bit is dull, bent, or damaged.**
13. **Drill with the Engine running at full speed.** Fully squeeze the Throttle to maintain a steady drilling speed.
14. **When shutting off the Engine, make sure the Auger has stopped before setting the tool down.**
15. Fire Hazard! Do not fill gas tank while Engine is running. Do not operate if gasoline has been spilled. Clean spilled gasoline before starting Engine. Do not operate near pilot light or open flame.
16. Do not touch Engine during use. Let Engine cool down after use.
17. Never store fuel or other flammable materials near the Engine.
18. Only use a suitable means of transport and lifting devices with sufficient weight bearing capacity when transporting the Engine.
19. Secure the Engine on transport vehicles to prevent the tool from rolling, slipping, and tilting.
20. Industrial applications must follow OSHA requirements.
21. Do not leave the Auger unattended when it is running. Turn off the Auger (and remove safety keys, if available) before leaving the work area.
22. Engine can produce high noise levels. Prolonged exposure to noise levels above 85 dBA is hazardous to hearing. Always wear ear protection when operating or working around the gas Engine while it is operating.
23. Wear ANSI-approved safety glasses, hearing protection, and NIOSH-approved dust mask/ respirator under a full face shield along with steel-toed work boots during use.
24. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the Engine's magneto or recoil starter.
25. Use only accessories that are recommended by Harbor Freight Tools for your model. Accessories that may be suitable for one Auger may become hazardous when used on another Auger.
26. Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Gasoline-powered engines may ignite the dust or fumes.
27. Stay alert, watch what you are doing and use common sense when operating this Auger. Do not use this Auger while tired or under the influence of drugs, alcohol or medication.
28. Do not overreach. Keep proper footing and balance at all times. This enables better control of the Auger in unexpected situations.
29. Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.
30. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
31. Do not cover the Engine or Auger during operation.
32. Keep the Auger, Engine, and surrounding area clean at all times.
33. Use the Auger, accessories, etc., in accordance with these instructions and in the manner intended for the particular type of Auger, taking into account the working conditions and the work to be performed. Use of the Auger for operations different from those intended could result in a hazardous situation.
34. Do not operate the Auger with known leaks in the Engine's fuel system.

35. This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)
36. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal container.
37. Keep hands and feet away from moving parts. Do not reach over or across Auger while operating.
38. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the Auger's operation. **If damaged, have the Auger serviced before using.** Many accidents are caused by poorly maintained Augers.
39. Use the correct Auger for the application. Do not modify the Auger and do not use the Auger for a purpose for which it is not intended.

Vibration Hazard

This tool vibrates during use. Repeated or long-term exposure to vibration may cause temporary or permanent physical injury, particularly to the hands, arms and shoulders. To reduce the risk of vibration-related injury:

1. Anyone using vibrating tools regularly or for an extended period should first be examined by a doctor and then have regular medical check-ups to ensure medical problems are not being caused or worsened from use. Pregnant women or people who have impaired blood circulation to the hand, past hand injuries, nervous system disorders, diabetes, or Raynaud's Disease should not use this tool. If you feel any symptoms related to vibration (such as tingling, numbness, and white or blue fingers), seek medical advice as soon as possible.
2. Do not smoke during use. Nicotine reduces the blood supply to the hands and fingers, increasing the risk of vibration-related injury.
3. Use tools with the lowest vibration when there is a choice between different processes.
4. Include vibration-free periods each day of work.
5. Grip tool as lightly as possible (while still keeping safe control of it). Let the tool do the work.
6. To reduce vibration, maintain the tool as explained in this manual. If any abnormal vibration occurs, stop use immediately.

Service Precautions

1. **Before service, maintenance, or cleaning:**
   a. **Turn the Engine switch to its "OFF" position.**
   b. **Allow the Engine to completely cool.**
   c. **Then, remove the spark plug cap from the spark plug.**
2. Keep all safety guards in place and in proper working order. Safety guards include muffler, air cleaner, mechanical guards, and heat shields, among other guards.
3. **Do not alter or adjust any part of the Auger or its Engine that is sealed by the manufacturer or distributor. Only a qualified service technician may adjust parts that may increase or decrease governed Engine speed.**
4. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during service.
5. Maintain labels and nameplates on the Auger. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
6. Have the Auger serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the Auger is maintained. Do not attempt any service or maintenance procedures not explained in this manual or any procedures that you are uncertain about your ability to perform safely or correctly.
7. Store Auger out of the reach of children.
8. Follow scheduled Engine and Auger maintenance.

Refueling:

1. Do not smoke, or allow sparks, flames, or other sources of ignition around the Auger, especially when refuelling.
2. Do not refill the fuel tank while the Engine is running or hot.
3. Do not fill fuel tank to the top. Leave a little room for the fuel to expand as needed.
4. Refuel in a well-ventilated area only.
5. Wipe up any spilled fuel and allow excess to evaporate before starting Engine. **To prevent FIRE, do not start the Engine while the smell of fuel hangs in the air.**

SAVE THESE INSTRUCTIONS.

Set Up

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

⚠WARNING

TO PREVENT SERIOUS INJURY:
Operate only with proper spark arrestor installed.

Operation of this equipment may create sparks that can start fires around dry vegetation.
A spark arrestor may be required.
The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

At high altitudes, the Engine's carburetor, governor (if so equipped), and any other parts that control the fuel-air ratio will need to be adjusted by a qualified mechanic to allow efficient high-altitude use and to prevent damage to the Engine and any other devices used with this product.

The emission control system for this Engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For warranty information, refer to the last pages of this manual.

IMPORTANT! Your Warranty is voided if either:

1. **You operate the Auger without the proper 25:1 fuel/oil mix in its Fuel Tank.** Do not run the Engine with an improper fuel mix, low or no fuel mix. Running the Engine with an improper fuel mix, low or no fuel mix, will permanently damage the unit.
2. **You operate the Auger without the proper amount of SAE 80-90 gear oil in its Gearbox.** Do not run the Auger with low or no gear oil. Running the Auger with low or no gear oil will permanently damage the unit.
3. **You operate the Auger without adding fuel stabilizer to the gasoline.** Do not run the Engine without treating the gasoline with fuel stabilizer. Follow fuel stabilizer manufacturer's recommendations for use. Running the Engine without treating the gasoline with fuel stabilizer will permanently damage the unit.

PREDATOR™
OUTDOOR POWER EQUIPMENT

Components and Controls

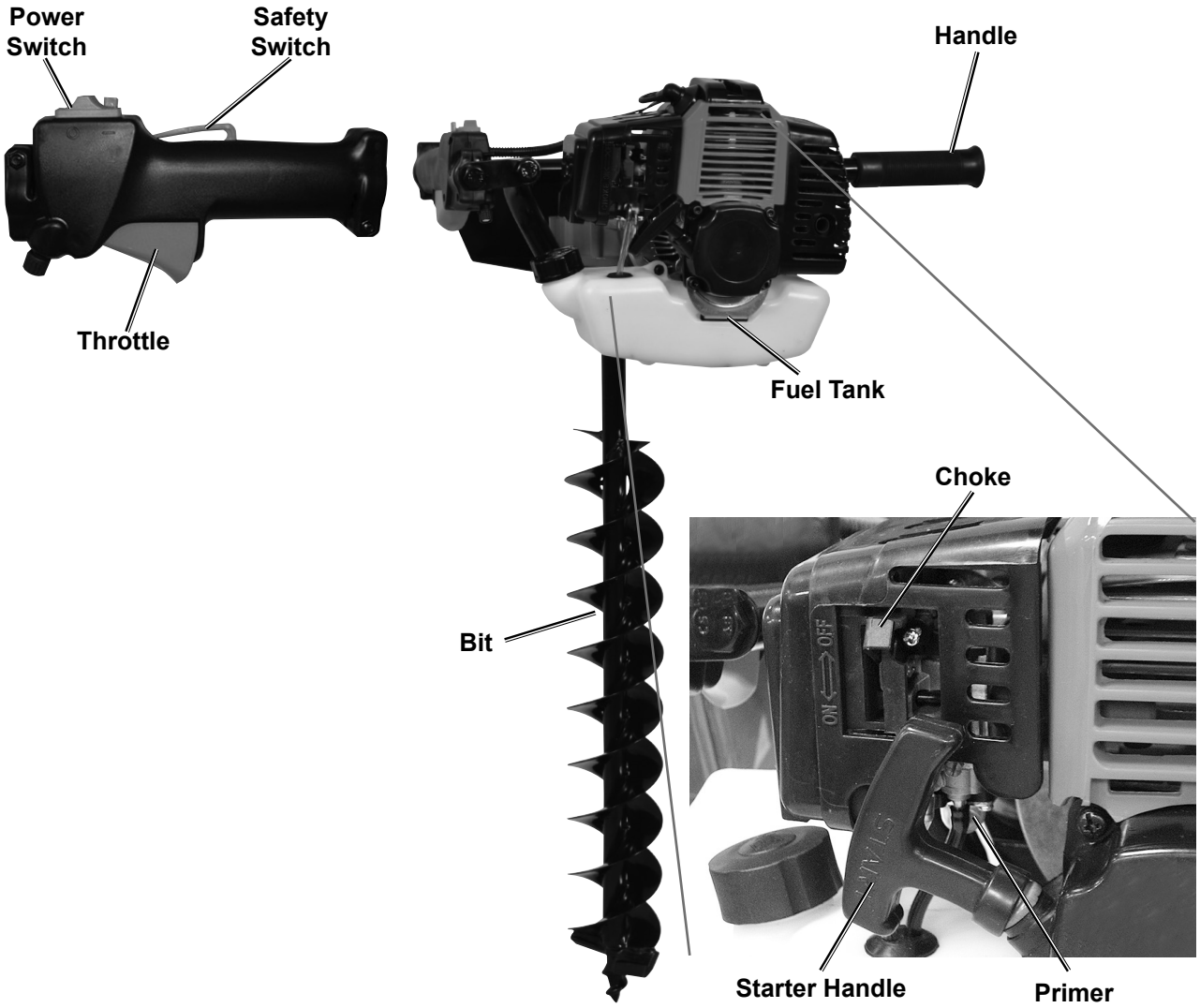


Figure A

PREDATOR™
OUTDOOR POWER EQUIPMENT

Operation

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Pre-Start Checks

Inspect Engine and Auger looking for damaged, loose, and missing parts before set up and starting.
If any problems are found, do not use Auger until fixed properly.

Checking and Filling Fuel

WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:
Fill the fuel tank in a well-ventilated area away from ignition sources.
If the Engine is hot from use, shut the Engine off and wait for it to cool before adding fuel.
Do not smoke.

IMPORTANT! Your warranty is voided if you operate the Auger without the proper 25:1 fuel/oil mix in its Fuel Tank. Do not run the Engine with an improper fuel mix, low or no fuel mix. Running the Engine with an improper fuel mix, low or no fuel mix will permanently damage the unit.

Check the fuel level before every use. If needed, add the proper fuel mixture as follows:

1. To obtain the proper 25:1 fuel mix, use 90 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use.
2. Combine 25 parts treated gasoline with 1 part 2-cycle oil in the provided Fuel Mix Container. Cover and gently agitate to thoroughly mix before each fueling. Refer to the chart below for proper mix quantities.

FUEL MIX QUANTITIES		
Ratio	**2-cycle Engine Oil**	**Unleaded Gasoline (90+ Octane)**
25:1	5 fl-oz	1 Gal.
25:1	10 fl-oz	2 Gal.

Note: Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol. Add fuel stabilizer to the gasoline or the Warranty is VOID.

Note: Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting Engine performance and/or causing damage.

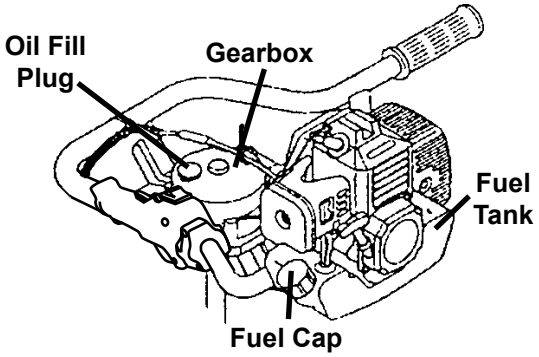


Figure B: Fuel and Oil Fill Locations

3. Once the proper fuel mixture is obtained, remove the Fuel Cap.
4. Fill the Fuel Tank approximately 3/4 full with the fuel mixture.
5. Replace the Fuel Cap.
6. Wipe up any spilled fuel and allow excess to evaporate before starting Engine. To prevent FIRE, do not start the Engine while the smell of fuel hangs in the air.

PREDATOR™
OUTDOOR POWER EQUIPMENT

Fill the Gearbox

IMPORTANT! <u>Your warranty is voided</u> if you operate the Auger without the proper amount of SAE 80-90 gear oil in its Gearbox. Do not run the Auger with low or no gear oil. Running the unit with low or no gear oil will permanently damage the unit.

1. Remove the Oil Fill Plug.
2. Wipe top of Gearbox with a clean cloth.
3. Remove Gearbox Fill Level Plug and add oil through the Oil Fill Level Plug until it reaches the Gearbox Fill Level Plug hole.

<u>Note:</u> The Auger must be vertical when adding gear oil to assure proper oil level.

4. Wipe up any spilled oil.
5. Replace the Oil Fill Plug and tighten securely.

<u>NOTICE:</u> Do not use dirty, used, or otherwise contaminated gear oil. Damage may occur to the internal mechanisms of the Gearbox.

<u>NOTICE:</u> Do not run the Auger with too little or too much oil. The Auger will be permanently damaged.

Installing Bit

1. Insert the shank of the Bit fully upward into the Transmission Socket on the bottom of the Auger.
2. Secure the Bit in the Transmission Socket, using the Pin and R-Pin.

PREDATOR™
OUTDOOR POWER EQUIPMENT

Operating Instructions

Before starting the Engine:

a. **Follow the Pre-start Checks to prepare the Auger.**

b. **Inspect the Auger and Engine.**

c. **Fill the Engine with proper 25:1 stabilizer-treated fuel/oil mix.**

d. **Check and add gearbox oil.**

e. **Check the work area for utility lines and landscaping fabric. Do not use near utility lines, and cut landscaping fabric clear before drilling.**

f. **Read the section that follows.**

1. Place the Auger on its side with its Bit resting on the ground that is to be drilled.

WARNING! Make sure that no debris, clothing, or other objects are near the Bit. Keep all bystanders away.

2. Press the Primer three or four times.

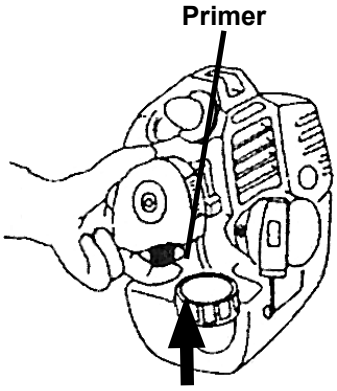


Figure C: Primer

3. Set the Choke (see Figure E):
Closed (Up) if the Engine is cold.
Open (Down) if the Engine is warm.

4. Move the Power Switch to the I position. Squeeze the Safety Switch with your palm and squeeze and release the Throttle.

5. Grip the Frame firmly with your left hand. Keep all body parts well away from the Bit. Then, with your right hand, pull rapidly on the Starter Handle to start the Engine.

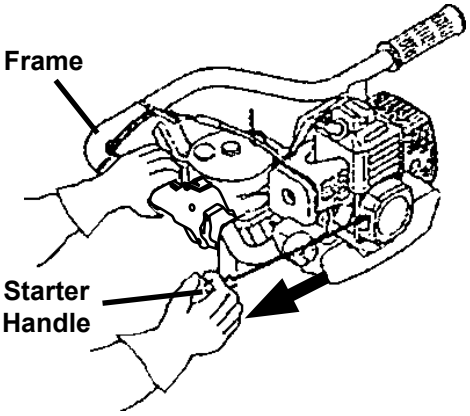


Figure D: Starter Handle

WARNING! **The Bit should NOT turn at idle.**
If it is turning at idle, shut off the Engine by releasing the Speed Control and pressing the Power Switch, disconnect the wire from the spark plug, then turn the Idle Screw (shown in Figure E) *counterclockwise* to reduce the idle RPM, or immediately discontinue using the Auger and contact a qualified service technician to make the adjustment.

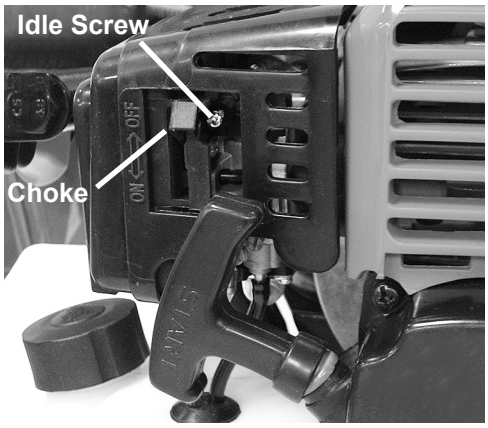


Figure E: Idle Screw and Choke

6. Once the Engine is started, press the Choke down slowly to open it.
7. If the Engine *does not* start, press the Primer one more time. Raise the Choke if it is pressed down, and again attempt to start the Engine.

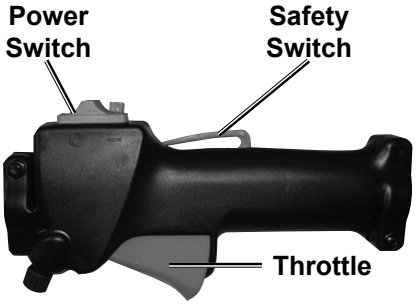


Figure F: Handle Controls

8. To stop the Auger when needed, release pressure on the Throttle. Then, slide the Power Switch to the O position.

WARNING! **Keep your thumb near the Power Switch so the Auger can be stopped immediately in an emergency. (See Figure F.)**

9. Stand with a solid stance on stable ground. Brace yourself and maintain a proper grip with both hands on the Frame whenever the Engine is running.
10. Accelerate the Engine to full throttle just before starting to drill by squeezing the Throttle. Keep the Engine at full throttle the entire time you are drilling, unless a problem arises.
11. **Do not drill at an angle**. Keep the Bit vertical at all times.
12. Allow the Bit to drill for you. Exert only light downward pressure. If you attempt to force the drill, damage to the Auger and Bit can result. **Be aware of the strong twisting forces produced by the drill during operation.**
13. Release the Throttle as soon as the drilling is completed, allowing the Engine to idle.

NOTICE: Avoid running the Auger at full throttle without a drilling load.

14. After running the Auger for an extended period of time, allow the Engine to idle for several minutes to dissipate the heat. This will prevent some Engine parts (ignition system, piston rings, carburetor, etc.) from being damaged by overheating. Then press the Power Switch to turn off the Engine.
15. Clean, then store the tool in a clean, dry, safe location out of reach of children and other unauthorized people.

NOTICE
See "Long-Term Storage" on page 13 for complete storage instructions.

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:
Turn the Power Switch of the Auger to its "OFF" position, wait for the Engine to cool, and disconnect the spark plug cap before performing any inspection, maintenance, or cleaning procedures.

TO PREVENT SERIOUS INJURY FROM AUGER FAILURE:
Do not use damaged Auger. If abnormal noise, vibration, or excess smoking occurs, have the problem corrected before further use.

Follow all service instructions in this manual. The Engine may fail critically if not serviced properly.

Many maintenance procedures, including any not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the Auger or Engine, have a qualified technician service the Auger instead.

Cleaning, Maintenance, and Lubrication Schedule

Note: This maintenance schedule is intended solely as a general guide. If performance decreases or if Auger operates unusually, check systems immediately. The maintenance needs of each Auger will differ depending on factors such as duty cycle, temperature, air quality, fuel quality, and other factors.

Note: The following procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the Engine and Auger.

Every Month (in dirty environments):

a. Check/clean Air Filter element.

b. Check/clean Fuel Filter (84) and Fuel Cap Set (94).

Every 3 Months or 50 Operation Hours:

a. Clean Air Filter element.

b. Clean Fuel Filter (84) and Fuel Cap Set (94).

c. Replace gear oil in Gearbox.

Every 6 Months or 100 Operation Hours:

a. Clean Air Filter element.

b. Clean/replace spark plug.

Every 300 Operation Hours:

a. Clean fuel tank and carburetor.

b. Clean carbon build-up from combustion chamber.

Every 3 years:

Replace Fuel Filter (84) and Fuel Cap Set (94).

Daily Maintenance

1. **Before each use:** Inspect the general condition of the Auger. Check for misalignment or binding of moving parts, cracked or broken parts, dull, bent, or damaged Bit, and any other condition that may affect the safe operation of the tool.
2. A Bit that is bent or packed with dirt and debris can cause personal injury. Replace a damaged Bit and keep the Bit clean at all times.
3. Check the Air Filter prior to each use for excessive dirt and debris buildup, clean as needed.
4. Check the gear oil level in the Gearbox prior to each use, and fill as needed with SAE 80-90 weight gear oil.
5. After each use, clean the exterior of the Engine with a clean cloth and mild detergent. Do not use solvents. Remove the Bit from the Engine and use a garden hose to wash off any dirt. Do not introduce liquids into the interior of the Engine.

Air Filter Element Maintenance

1. Wipe off the Air Filter Cover (79).
2. Remove the Head Cover Bolt (81), the Air Filter Cover, and the plate holding the Air Filter in place. Note the placement of the plate so the bolt hole in the center is in alignment for re-assembly.
3. Remove the Air Filter element.
4. Wipe Air Cleaner Case (73).
5. Wash the element in warm water and mild detergent several times. Rinse. Squeeze out excess water and allow it to dry completely. Soak the filter in lightweight oil briefly, then squeeze out the excess oil.
6. Install the cleaned filter in reverse order of removal. Secure the Air Filter Cover before use.

Spark Plug Maintenance

1. Disconnect spark plug wire from end of plug. Clean out debris from around spark plug.
2. Using a spark plug wrench, remove the spark plug.
3. Inspect the spark plug:
   If the electrode is oily, clean it using a clean, dry rag.
   If the electrode has deposits on it, polish it using emery paper.
   If the white insulator is cracked or chipped, the spark plug needs to be replaced.
4. When installing a new spark plug, adjust the plug's gap to the specification on the Specification chart. Do not pry against the electrode or the insulator, the spark plug can be damaged.
5. Install the new spark plug or the cleaned spark plug into the Engine.

   Gasket-style: Finger-tighten until the gasket contacts the cylinder head, then about 1/2-2/3 turn more.

   Non-gasket-style: Finger-tighten until the plug contacts the head, then about 1/16 turn more.
6. Apply a small amount of dielectric grease (not included) to the insulator of the spark plug and attach the wire securely to the spark plug.

Fuel Filter Maintenance

⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:
Replace or clean the Fuel Filter in a well-ventilated area away from ignition sources. Do not smoke.

1. Wear protective gear including, ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and nitrile gloves.
2. There is a Fuel Filter (84) hanging inside the Fuel Tank and a filter in the Fuel Cap Set (94).
3. To clean, remove them from the tank and flush them with clean gas over a container to remove any debris. Replace the cleaned filter or a new filter in the tank.
4. Clean up any spilled fuel.
5. Wait for at least one hour before use to allow all residual fuel vapors to dissipate. **To prevent FIRE, do not start the Engine while the smell of fuel hangs in the air.**

Long-Term Storage

When the equipment is to remain idle for longer than 20 days, prepare the engine for storage as follows:

1. **CLEANING**:
   Wait for engine to cool, then clean engine with dry cloth. **NOTICE: Do not clean using water.** The water will gradually enter the engine and cause rust damage. Apply a thin coat of rust preventive oil to all metal parts.
2. **FUEL:**

⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:
To protect the fuel tank during storage, fill the tank with gasoline treated with fuel stabilizer in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke. Refer to "Checking and Filling Fuel" on page 8.

3. **LUBRICATION:**
   a. Change engine oil.
   b. Clean out area around spark plug. Remove spark plug and pour one tablespoon of engine oil into cylinder through spark plug hole.
   c. Replace spark plug, but leave spark plug cap disconnected.
   d. Pull Starter Handle to distribute oil in cylinder. Stop after one or two revolutions when you feel the piston start the compression stroke (when you start to feel resistance).
4. **BATTERY:**
   Disconnect battery cables (if equipped). Recharge batteries monthly while in storage.
5. **STORAGE AREA:**
   Cover and store in a dry, level, well-ventilated area out of reach of children. Storage area should also be away from ignition sources, such as water heaters, clothes dryers, and furnaces.

NOTICE: During extended storage periods the Engine must be started every 3 months and allowed to run for 15–20 minutes or the Warranty is VOID.

6. **STARTING ENGINE DURING/AFTER STORAGE:**
   Before starting the Engine during or after storage, keep in mind that untreated gasoline will deteriorate quickly. Drain the fuel tank and change to fresh fuel if untreated gasoline has been sitting for a month, if treated gasoline has been sitting beyond the fuel stabilizer's recommended time period, or if the Engine does not start. For Engine starting instructions refer to "Operating Instructions" on page 10.

Troubleshooting

Problem	Possible Causes	Probable Solutions
Engine will not start	FUEL RELATED: 1. Low or no fuel in fuel tank or improper fuel/2-cycle oil mixture. 2. Choke not in start position, especially with cold Engine. 3. Low quality or deteriorated, old gasoline. 4. Carburetor not primed. 5. Dirty fuel passageways blocking fuel flow. 6. Carburetor needle stuck. Fuel can be smelled in the air. 7. Too much fuel in chamber. This can be caused by the carburetor needle sticking. 8. Blocked Fuel Cap Set (94) or Fuel Filter (84).	FUEL RELATED: 1. Fill fuel tank with proper 25:1 unleaded gasoline and 2-cycle oil mixture. 2. Close the choke if Engine is cold. Leave open if the Engine is hot. 3. Use only fresh 25:1 ratio of 90+ octane unleaded gasoline and 2-cycle oil mixture. 4. Prime carburetor by pressing Primer specified number of times. 5. Clean out passageways using fuel additive. Heavy deposits may require further cleaning. 6. **Gently** tap side of carburetor float chamber with screwdriver handle. 7. Open the choke. Remove spark plug and pull the start handle several times to air out the chamber. Reinstall spark plug and close the choke. 8. Clean/replace Filter (84 or 94) components.
	IGNITION (SPARK) RELATED: 1. Spark plug wire not connected securely. 2. Spark plug electrode wet or dirty. 3. Incorrect spark plug gap. 4. Spark plug wire or spark plug broken. 5. Incorrect spark timing or faulty ignition system.	IGNITION (SPARK) RELATED: 1. Connect spark plug wire properly. 2. Clean spark plug. 3. Reset spark plug gap. 4. Replace spark plug wire and/or spark plug. 5. Have qualified technician diagnose/ repair ignition system.
	COMPRESSION RELATED: 1. Cylinder not lubricated. Problem after long storage periods. 2. Loose or broken spark plug. (Hissing noise will occur when trying to start.) 3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.)	COMPRESSION RELATED: 1. Pour tablespoon of oil into spark plug hole. Crank Engine a few times and try to start again. 2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, it may be a head gasket problem, see #3. 3. Tighten head. If that does not remedy problem, replace head gasket.
Auger rotates while Engine is idle	Engine idle Speed set too high.	Reset carburetor Idle Screw to lower idle (RPM) speed, see Warning on page 11.
Gearbox feels exceptionally hot to the touch	Low level of gear oil.	Immediately turn off Auger. Allow gearbox to completely cool. Then, fill gearbox with SAE 80-90 gear oil.

Follow all safety precautions whenever diagnosing or servicing the Auger or Engine.

Problem	Possible Causes	Probable Solutions
Power switch does not turn off Engine	Faulty Power switch.	Immediately remove spark plug cap from spark plug to stop Engine. Discontinue using Auger until the tool is repaired by a qualified service technician.
Engine runs, but Bit is not rotating	1. Throttle not properly used. 2. Throttle cable not properly adjusted. 3. Bit stuck in rocks, roots, etc.	1. Make sure to fully squeeze the Throttle. 2. Have a qualified service technician adjust Throttle cable. 3. Remove Bit from hole and clear hole of obstructions.
Engine misfires	1. Spark plug wire loose. 2. Incorrect spark plug gap or damaged spark plug. 3. Defective spark plug wire. 4. Old or low quality gasoline. 5. Incorrect compression.	1. Check wire connections. 2. Correct gap or replace spark plug. 3. Replace spark plug wire. 4. Use only fresh 25:1 ratio of 90+ octane unleaded gasoline and 2-cycle oil mixture. 5. Diagnose and repair compression. (Use **Engine will not start: COMPRESSION RELATED** section, facing page.)
Engine stops suddenly	1. Fuel tank empty or full of impure, low quality gasoline or improper mix of gasoline to oil. 2. Defective fuel tank cap creating vacuum, preventing proper fuel flow. 3. Improper idle speed. 4. Incorrect timing, or clogged carburetor.	1. Empty and dispose of old fuel properly. Fill fuel tank with fresh 25:1 ratio of 90+ octane unleaded gasoline and 2-cycle oil mixture. 2. Test/replace fuel tank cap. 3. Properly adjust idle speed. 4. Have qualified technician diagnose and service Engine.
Engine knocks	1. Fuel tank empty or full of impure, low quality gasoline or improper mix of gasoline to oil. 2. Engine overloaded. 3. Incorrect spark timing, deposit buildup, worn Engine, or other mechanical problems.	1. Empty and dispose of old fuel properly. Fill fuel tank with fresh 25:1 ratio of 90+ octane unleaded gasoline and 2-cycle oil mixture. 2. Do not exceed equipment's load rating. 3. Have qualified technician diagnose and service Engine.
Engine backfires	1. Fuel tank empty or full of impure, low quality gasoline or improper mix of gasoline to oil. 2. Engine too cold. 3. Choke not open after Engine warm. 4. Engine not properly adjusted for high altitude operation. 5. Intake valve stuck, choke stuck, incorrect timing, clogged carburetor, or overheated Engine.	1. Empty and dispose of old fuel properly. Fill fuel tank with fresh 25:1 ratio of 90+ octane unleaded gasoline and 2-cycle oil mixture. 2. Use cold weather fuel and oil additives to prevent backfiring. 3. Open choke after Engine warms up. 4. Qualified technician must adjust Engine at altitudes greater than 5,000 feet above sea level. 5. Have qualified technician diagnose and service Engine.

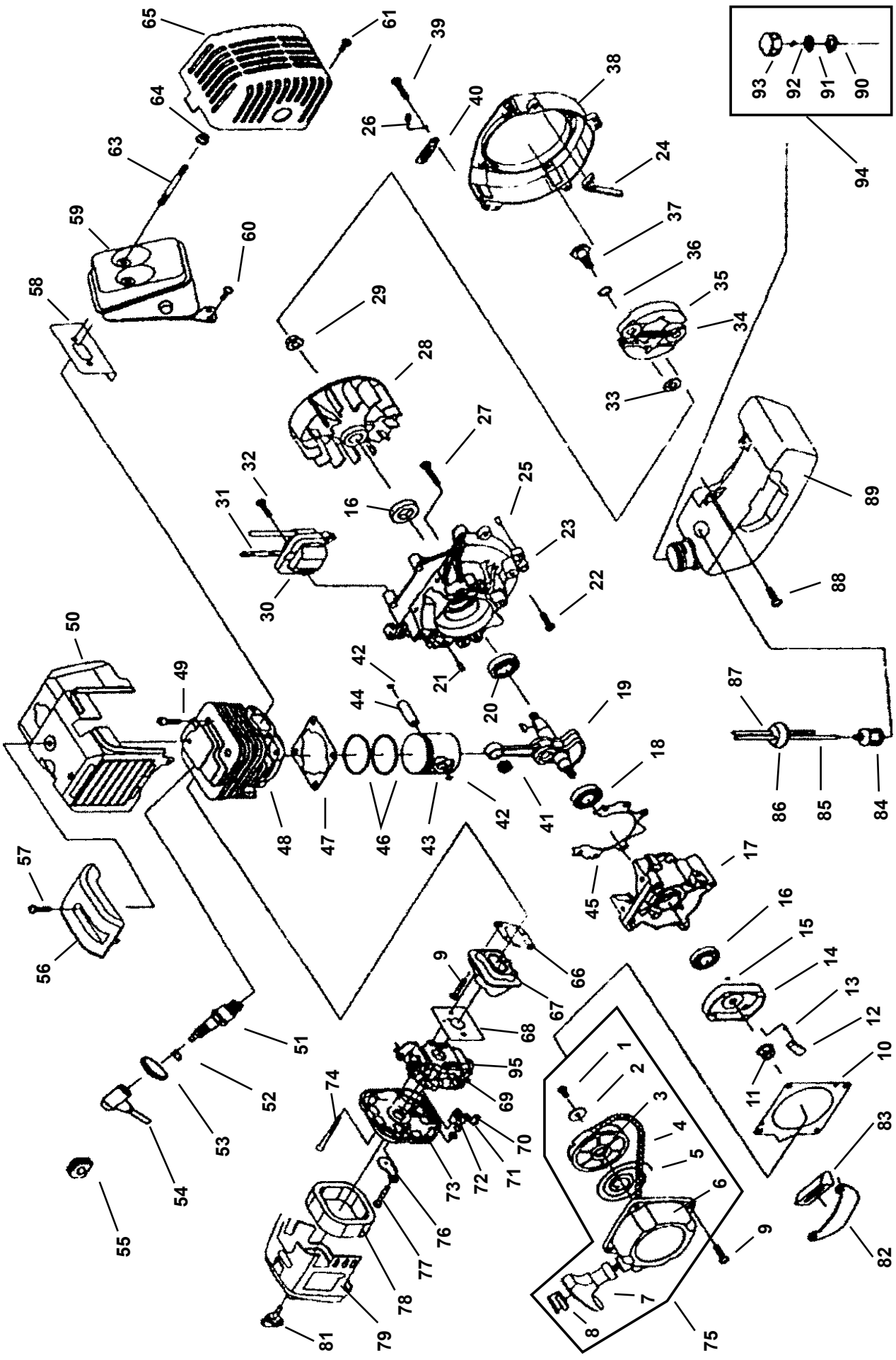
Follow all safety precautions whenever diagnosing or servicing the Auger or Engine.

Engine Parts List

Part	Description	Qty
1	Set Screw (M5 x 12)	1
2	Gasket	1
3	Reel	1
4	Starter Rope	1
5	Spiral Spring	1
6	Rewind Starter Assy.	1
7	Starter Handle	1
8	Handle Clip	1
9	Screw (M5 x 20)	6
10	Crankcase Gasket	1
11	Nut (M8)	1
12	Startup Claw	1
13	Startup Reed	1
14	Cover	1
15	Outer Snap Ring (4)	1
16	Small Oil Seal	2
17	Crankcase Cover	1
18	Ball Bearing (6201/P5)	2
19	Crankshaft (Complete)	1
20	Woodruff Key (3 x 5 x 13)	1
21	Set Pin (B4 x 10)	2
22	Screw (M5 x 12)	2
23	Crankcase	1
24	Flow Guard	1
25	Set Pin (B4 x 10)	2
26	Support	1
27	Screw (M5 x 30)	4
28	Rotor	1
29	Nut (M8)	1
30	Stator	1
31	Flameout Line	1
32	Screw	1
33	Washer (B)	2
34	Return Spring	1
35	Cushion	2
36	Washer	2
37	Screw	2
38	Fan Shroud	1
39	Screw (M5 x 21)	4
40	Wire Clip	1
41	Piston Pin	1
42	Piston Pin Circlip	2
43	Piston	1
44	Piston Pin	1
45	Crankcase Gasket	1
46	Piston Ring	2
47	Cylinder Gasket	1

Part	Description	Qty
48	Cylinder	1
49	Bolt (M5 x 18)	4
50	Cylinder Cover	1
51	Spark Plug	1
52	Spark Plug Clip Reed	1
53	Spark Plug Cover	1
54	Spark Plug Cap	1
55	Cap Cover	1
56	Top Cover	1
57	Screw (M5 x 20)	1
58	Muffler Insulator	1
59	Muffler	1
60	Socket Head Bolt (M5 x 12)	1
61	Socket Head Bolt (M5 x 12)	1
63	Stud	2
64	Nut (M6)	2
65	Muffler Protection Cover	1
66	Intake Port Gasket	2
67	Intake Port	1
68	Carburetor Gasket	1
69	Carburetor Assy.	1
70	Choke Switch	1
71	Washer	1
72	Nut (M4)	1
73	Air Cleaner Case	1
74	Bolt (M5 x 50)	2
75	Recoil Starter	1
76	Choke	1
77	Self Tapping Bolt (ST4.2 x 12)	1
78	Air Filter	1
79	Air Filter Cover	1
81	Head Cover Bolt	1
82	Gasoline Tank Strut	1
83	Latex Cover	1
84	Fuel Filter	1
85	Fuel Line	1
86	Fuel Line Plug	1
87	Fuel Line	1
88	Bolt (M5 x 20)	2
89	Fuel Tank	1
90	Packing Ring	1
91	Intake Strut	1
92	Intake	1
93	Fuel Cap	1
94	Fuel Cap Set	1
95	Primer	1

Engine Assembly Diagram



Parts List A - Auger

Part	Description	Qty
1a	Starting Flange	1
2a	Oil Seal (20 x 52 x 7)	1
3a	Washer	1
4a	Washer	1
5a	Fender Ring (47)	1
6a	Bearing (6204)	1
7a	Worm Gear	1
8a	Gearbox	1
9a	Hex Head Screw (M6 x 25)	4
10a	Stud (M6)	4
11a	Nut (M6)	4
12a	Washer	1
13a	Gear	1
14a	Lining (not shown)	1
15a	Transmission Socket	1
16a	Washer	1
17a	Gasket	1
18a	Gearbox Cover	1
19a	Oil Seal (20 x 35 x 7)	1
20a	Oil Fill Plug	1

Part	Description	Qty
21a	Gearbox Fill Level Plug (M6 x 12)	1
22a	Washer	1
23a	Paper Underlay	1
24a	Screw (M6 x 16)	6
25a	Cushion Frame	1
26a	Liner Tube	5
27a	Washer	10
28a	Washer	6
29a	Hex Head Screw (M6 x 30)	5
30a	Screw	4
31a	Nut	4
32a	Washer	4
33a	Bit	1
34a	Pin	1
35a	R-Pin	1
36a	Fuel Mix Container	1
37a	Hex Wrenches	2
38a	Open End Wrench	1
39a	Spark Plug Socket	1
40a	Screwdriver	1

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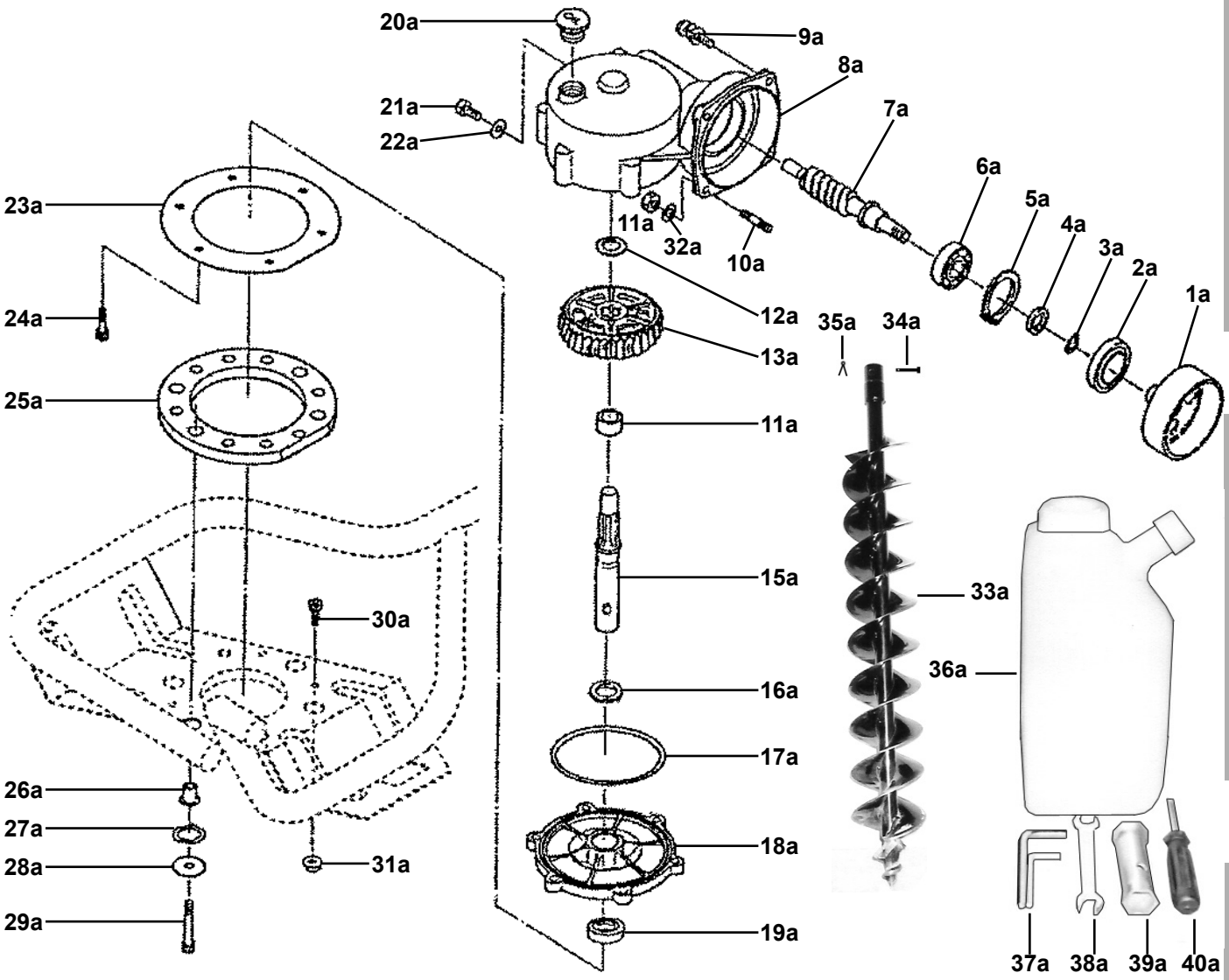
Assembly Diagram A - Auger



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Parts List B - Frame

Part	Description	Qty
1b	Frame	1
2b	Handle	1
3b	Tie Strip	3
4b	Handle	1
5b	Power Switch	1

Part	Description	Qty
6b	Power Switch Bracket	1
7b	Screw M12 x 20	2
8b	Accelerator Cable	1
9b	Bushing	1
10b	Throttle	1

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Record Product's Serial Number Here:_____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

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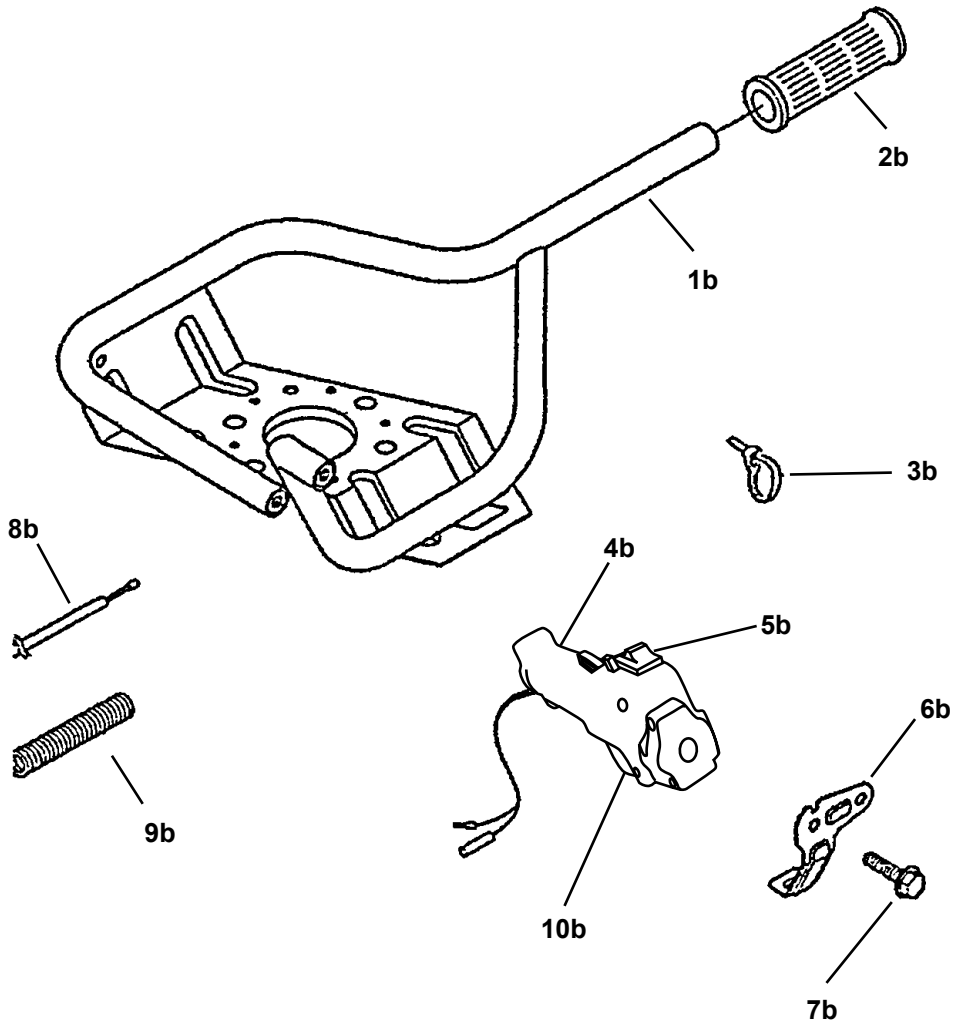
Assembly Diagram B - Frame



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Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Emission Control System Warranty

California and United States Emission Control Defects Warranty Statement

The California Air Resources Board (herein CARB), the United States Environmental Protection Agency (herein EPA), and Harbor Freight Tools (herein HFT) are pleased to explain the emission control system warranty on your 1995 and later Small Off-Road Engine (herein engine). In California, the engine must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere Within the United States, new off-road, spark-ignition engines certified for model year 1997 and later, must meet similar standards set forth by the EPA. HFT must warrant the emission control system on your engine for the periods of time described below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, and the ignition system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, HFT will repair your engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

The 1995 and later engines are warranted for two (2) years. If any emission-related part on your engine is defective, the part will be repaired or replaced by HFT.

Harbor Freight Tools Emission Control Defects Warranty Coverage

Engines are warranted for a period of two (2) years relative to emission control parts defects, subject to the provisions set forth below. If any emission related part on your engine is defective, the part will be repaired or replaced by HFT.

Owner's Warranty Responsibilities

- As the engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. HFT recommends that you retain all receipts covering maintenance on your engine, but HFT cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the engine owner, you should, however, be aware that HFT may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.
- You are responsible for shipping your engine to a HFT warranty station as soon as a problem exists. Contact the HFT Customer Service department at the number below to make shipping arrangements. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact the Harbor Freight Tools Customer Service Department at 1-888-866-5797.

Harbor Freight Tools Emission Control Defects Warranty Provisions

1. Length of Coverage

HFT warrants to a first retail purchaser and each subsequent purchaser that the engine is free from defects in materials and workmanship that cause the failure of warranted parts for a period of two (2) years after the date of delivery to the first retail purchaser.

2. No Charge Repair or Replacement

Repair or replacement of any warranted part will be performed at no charge to the owner if the work is performed through a warranty station authorized by HFT. For emissions warranty service, contact the HFT Customer Service Department at 1-888-866-5797.

3. Consequential Damages Coverage

Coverage under this warranty shall also extend to the failure of any engine components caused by the failure of any warranted part while it is still covered under this warranty.

4. Coverage Exclusions

Warranty claims shall be filed in accordance with the provisions of the HFT warranty policy explained in the box at the top of the previous page. HFT shall not be liable for any loss of use of the engine, for any alternative usage, for any damage to goods, loss of time, or inconvenience. Warranty coverage shall also be excluded for any part which fails, malfunctions, or is damaged due to failure to follow the maintenance and operating instructions set forth in the Owner's Manual including, but not limited to:

a) Use of parts which are not authorized by HFT

b) Improper installation, adjustment or repair of the engine or of any warranted part unless performed by an authorized warranty center

c) Failure to follow recommendations on fuel use contained in the Owner's Manual

d) Improper or inadequate maintenance of any warranted parts

e) Repairs performed outside of the authorized warranty service dealers

f) Alterations by changing, adding to or removing parts from the engine.

5. Service and Maintenance

Component parts which are not scheduled for replacement as required maintenance or are scheduled only for regular inspection to the effect of "repair or replace as necessary" are warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time up to the first scheduled replacement point for that part. Any replacement part, provided it is equivalent in durability and performance, may be used in performance of maintenance or repairs. The owner is responsible for commissioning a qualified technician/mechanic to perform all required maintenance, as outlined in the Inspection, Cleaning, and Maintenance section in this manual.

6. Warranted Parts

1) Fuel Metering System

i) Carburetor and its internal parts.

ii) Fuel pump (if so equipped).

iii) Cold start enrichment system.

2) Air Induction System

i) Intake pipe/manifold.

ii) Air cleaner.

3) Ignition System

i) Spark plug.

ii) Magneto ignition system.

4) Catalyst System (if so equipped)

i) Exhaust pipe stud.

ii) Muffler.

iii) Catalytic converter (if so equipped).

5) Miscellaneous Items Used in Above Systems

i) Vacuum, temperature and time sensitive valves and switches.

ii) Hoses, belts, connectors, and assemblies.

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